

checklist continued to aid museum architectural planning as Bennett refined it.⁵¹

The Service architect who designed the museum building for Custer Battlefield National Monument no doubt referred to it. Constructed in the early 1950s, this museum contained a good-sized vault for collection storage with a workroom adjacent. Its basement location disagreed with the guidelines, but the museum site on a sagebrush hill appeared to minimize risks of high humidity or flooding.

Collections also received careful consideration in the museums built in 1957. That designed by Service architect Cecil Doty for Grand Canyon National Park had a large room on the main floor for the study collection adjoined by a relatively spacious work and study room for the seasonal naturalists and visiting scientists who would use it. Staff offices, library, and exhibit rooms were conveniently close. Unfortunately, other managerial needs for the work and study room soon caused its functions to be shifted into the storeroom with the collection. The extensive Jamestown and Yorktown study collections at Colonial National Historical Park were brought together for curatorial efficiency in the basement of the new visitor center at Jamestown. One end of the basement opened at grade level, where a glazed wall gave well-lighted space for curatorial operations. Events in this case showed why the guidelines advised against basements for storage functions: within a few years hurricane-driven flood waters of the James River invaded the collection store.

The 1957 structures set course for the hundred or so visitor centers erected under Mission 66 that housed park museums. In mid-1960 the Museum Branch declared that the new buildings had provided improved study collection space in most instances. Evidently this observation came from plan reviews rather than inspection of the actual buildings. By the end of the year, following visits to several of the parks involved, the branch revised its position. The most common and serious faults discovered in collection storage provisions included inadequate size, basement location, shared occupancy or access, and lack of environmental controls. Adverse effects on the collections and their use became increasingly apparent as time passed.⁵² By the 1970s some kind of corrective action seemed urgent, at least to central and regional curatorial staffs.

As a first step the Museum Services Division led by Arthur Allen began preparation of collection management plans in 1975 (Chapter Five). These undertook to devise and recommend practicable solutions for proper collection storage that would largely overcome the deficiencies of existing museums. In especially critical cases the division prepared briefer collection storage plans that concentrated on this aspect. Both plans depended on park management for execution. In a few instances, as at Antietam National Battlefield in 1981 and Nez Perce National Historical

Park in 1982, the division in collaboration with the regional curator took a work crew to the park to physically upgrade storage conditions as proposed in the plan. Such measures, continuing beyond the period of this study, alerted Service management and created momentum toward bringing collection space up to acceptable standards.

Proper specimen care also depended on furnishings for the storerooms. Specimen containers needed to achieve three objectives: to protect the specimens and attached data from agents of deterioration, to facilitate systematic arrangement of the stored objects so items could be located readily for inspection or study, and to use the available volume of storage space efficiently.

By the time museums became a matter of concern in national parks, natural history curators elsewhere had worked out practical cabinets for filing study skins, herbarium sheets, and pinned insects. A few manufacturers marketed specialized equipment for these contents, although many museums continued to build their own. For other kinds of natural history specimens and material culture objects that ranged more widely in size, shape, and vulnerability, individual museums often devised their own solutions. In park museums adoption of collection storage equipment went through four fairly distinct stages.

The first stage consisted of local ad hoc actions. Yosemite must have enclosed its 1922 museum collections in some manner because Carl Russell reported carrying out an overdue fumigation of them the next year. In 1929 he improvised study collection storage in the attic of the newer Yosemite Museum, as noted above. A few weeks later discussions at the First Park Naturalists' Training Conference showed that the conferees had some familiarity with natural history specimen storage, probably as practiced at the universities where they had studied.⁵³ Coleman's *Manual for Small Museums*, to which they referred during the conference, described and illustrated a simple cabinet with drawers a museum might build for storing a variety of specimens.

More substantive help marked the second stage, which came in the mid-1930s as a byproduct of the Depression. The Field Division of Education and its successor Western Museum Laboratories, employing a considerable number of emergency relief workers, produced a variety of supplies and equipment that parks could order for not more than the cost of materials and shipment (Chapter Three). In April 1938 the Western Museum Laboratories sent each park an illustrated catalog of the various products it could supply under this program, including study skin, herbarium, geology, and insect cabinets.⁵⁴ Park museums across the country welcomed the chance to acquire these sturdy, practical cases at bargain prices although the total number of cabinets produced may not have been large.

This second-stage storage equipment represented good functional design. The shop probably patterned the study skin cabinet after the type used by the Museum of Vertebrate Zoology at the University of California, which Joseph Grinnell had made a model of well-organized storage. The case had a wood frame sheathed in galvanized iron, held a single tier of shallow drawers with wood sides and composition board bottoms, and opened by a removable front held against a rubber gasket. Its counter-high top provided a convenient work surface. The exterior construction of the herbarium cabinet resembled the study skin case but the interior contained two double tiers of fixed rectangular compartments to hold dried plants mounted on herbarium sheets and assembled in systematic folders. The geology case replaced the metal sheathing with plywood and held two tiers of smaller, sturdier drawers to carry the heavier specimens involved. The metal-sheathed insect cabinet, designed in consultation with university entomologists for park museum use, aimed to store a relatively small collection.

The Museum Division in Washington addressed the proper storage of park museum collections in the 1941 *Field Manual for Museums*. Recognizing what the Western Laboratories called a study skin case as a preferred container for most kinds of relatively small objects, the manual termed it the standard study collection cabinet. Because some items in most collections would not fit in one of these or required special protection, the manual also recommended herbarium cabinets, the Western Laboratories' insect cabinet, commercial map files for large flat paper artifacts, and wire screens for hanging framed pictures. It advised placing specimens singly in trays when filing them in the standard cabinet drawers to minimize damage from handling and from the objects jostling against one another.⁵⁵

The postwar Museum Branch moved slowly toward the third stage, adoption of a standard system for storing park study collections. Several advantages were envisioned: all parks would use equipment of high quality specifically designed to accomplish the three objectives cited above; disseminating professional advice and instruction in its efficient use would become practicable; centralized procurement would help ensure quality and economy; personnel moving from park to park would transfer their familiarity with the equipment; and any surplus of standard equipment could find ready use in another park. The branch detailed its proposals for a uniform system of storage equipment in a 1956 amendment to the Service's *Administrative Manual*.⁵⁶

Its recommendations stemmed from considerable study. The basic cabinet prescribed for park storage was based on the "quarter section" units used by the Smithsonian's National Museum but was of all-steel rather than steel-and-wood construction. Established manufacturers in the field helped the branch develop the necessary specifications using the inside drawer

dimensions of the National Museum prototype as the starting point. Other components of the system needed less modification in stock items. Compartment size in herbarium cabinets had become standardized, so all-steel counter-high ones from several manufacturers required only the removable door and polyurethane foam gasket prescribed for the basic cabinet to meet branch specifications.⁵⁷ The new standard for herbarium cabinets called for one double tier of compartments rather than two as formerly. Such a unit would hold up to nine hundred herbarium sheets so one might suffice for some parks. Manufacturers also offered counter-high steel insect cabinets holding twelve glass-covered drawers, which differed in size and construction. The branch favored the more tightly closing National Museum drawer, but because several parks had already acquired cabinets and drawers of the Cornell type, the latter became the Service standard.

The 1956 standard storage system included a few other items. Because no product then on the market offered museum standards of protection for large flat paper specimens such as maps, architectural plans, and newspapers, the branch specified ordinary map file cabinets. Their large shallow drawers did not close tightly enough to keep out dust or insect pests, so parks were advised to enclose each stored sheet in an individual folder. The National Archives had developed document boxes lined inside and out with aluminum foil for smaller papers; while neither insect- nor dust-tight, they gave surprisingly good protection from fire. For document boxes and specimens too large to fit in the standard cabinets, the branch identified the most suitable steel shelving available from Federal Prison Industries, the required source of government procurement. For storing framed pictures the branch suggested the metal-framed screens made for building partitions. As a final item the 1956 system described a gun rack parks could make, suggested how to adapt it for swords and scabbards, and noted that it could be fitted into a stock utility cabinet.⁵⁸

Putting the system into effect required procurement funds. For new museums, storage equipment was supposed to be programmed as part of the construction costs, but this rarely happened. For existing museums, parks were to provide for needed equipment in their annual maintenance and rehabilitation program. This helped but seldom sufficed. The Museum Branch tried to fill the gap by reserving part of its annual allotment for the preservation of collections to aid parks in acquiring storage equipment. Parks would submit lists of their unfunded storage needs, the regional curators would review and rank them, and the branch would issue year-end purchase orders to the limit of available money. Meanwhile the branch tried to keep on hand stocks of specimen trays and document boxes for distribution to park museums on request.

The third-stage specimen storage system of 1956 remained the Service standard for about twenty years while undergoing some refinement. Following discussions at the first regional curators' conference in 1959, the branch recommended and stocked a small supply of the Solander-type print boxes used by many art museums to store unframed works of art on paper. It also included as a regular part of the system the steel utility cabinet from the Federal Supply Schedule previously suggested for housing the gun rack. This inexpensive unit gave at least visual protection to several kinds of museum objects that did not require or fit well in the standard cabinets. Part I of the *Museum Handbook* released in July 1967 presented a rational description of the third-stage storage equipment with illustrations and included revised specifications for the principal cabinets. It referred to a double-width version of the standard specimen cabinet for larger animal skins, elaborated on uses for the utility cabinet including a new revolving sword rack, and added expanded aluminum panels as an alternative to wire mesh for storing framed pictures.

Users of the equipment in the parks required more than verbal instructions. The Museum Branch in its annual methods course made a point of showing trainees how curators at the National Museum and elsewhere carefully filed specimens in similar cabinets. Russell Grater provided standard cabinets for demonstration and practice when he set up the first courses for park interpreters at the Mather Training Center in 1963-64. When a 1972 flood prompted Harpers Ferry National Historical Park to move its study collection to higher ground, David Wallace and his Branch of Museum Operations staff helped make the new installation a model of the Service's study collection storage policy. For the rest of the decade and beyond curatorial methods trainees used it as a resource to observe how the system worked in practice.

The change to a more flexible fourth stage during the 1970s and early 1980s came as conservation scientists significantly expanded knowledge about the agents that cause specimens to deteriorate, the processes involved, and ways to counteract them, and as suppliers responded with new protective products. The Division of Museum Services under Arthur Allen moved promptly to help parks keep abreast of the rising standards and product availability.

The division added a number of new acid-free boxes and folders to the established system to upgrade the storage of paper and textile artifacts. Standard specimen trays were converted to fully acid-free construction. With additional manufacturers supplying steel storage cabinets, the division reviewed and adjusted its standard specifications to allow removable doors with special hinges and improved closing mechanisms. The availability of more specialized cabinets for costume storage or visible storage of objects frequently consulted in comparative studies, for example, led it to acquire

and test samples for park museum use. Released from mandatory purchase of steel shelving from Prison Industries, it adopted a more flexible type although it used plywood shelves requiring compensation for increased fire and outgassing hazards. Continuing beyond the period of this study, such additions and changes perhaps eroded to some extent the advantages previously attained by narrower standardization.

The ongoing search for ideal specimen storage was paralleled by efforts to control environmental conditions. Curators long knew that they affected the preservation of collections but knew less about practical ways of controlling them. Although the 1941 *Field Manual for Museums* revealed some familiarity with the injurious effects of light, especially sunlight, it gave no advice on how to measure the light reaching specimens or on how much to tolerate. Ultraviolet filters received bare mention. The *Field Manual* pointed out in several connections the damage caused by too much or too little moisture in the air, but its index did not include relative humidity and only a reference in the library chapter recommended the use of sling psychrometers to measure it. The manual suggested setting out pans of water to add moisture and pans of calcium chloride to remove it. Silica gel, a newer alternative desiccant, was noted. So was air conditioning, although Service architects questioned its practicality in park situations. No level of relative humidity was recommended beyond a single statement that air at 50% relative humidity and 70° F would protect against mold.

Park museums like many others made slow progress in achieving climate control for collections. In 1955 the museum laboratory fabricated evaporating pans for George Washington Birthplace National Monument to help raise winter moisture levels in the memorial mansion, where antique furnishings evidently needed such protection. The laboratory itself relied on pans of water, towel wicks, and electric fans to humidify its collection storeroom during winter months. Probably late in the 1950s curators at Independence National Historical Park used more sophisticated commercial humidifiers to help protect the important portrait collection in temporary storage during the restoration of Independence Hall.

In 1962 the Museum Branch consulted an international expert in the expanding field of museum climatology and upon his advice assembled two kits for measuring relative humidity. Each contained three instruments packed in a fitted shipping case. The basic component, a battery-powered aspirated psychrometer, measured the relative humidity in a room and served to calibrate the other two instruments—a spring-driven hygrothermograph and a dial hygrometer. The former could measure and record on a chart both temperature and relative humidity inside an exhibit case or storage cabinet continuously for a week. The dial instrument could hang on a wall or inside an exhibit case to be read periodically. Circulated to the parks from the Museum Branch office and the western laboratory,

both kits received extensive use. In 1964 Regional Curator Elizabeth Albro reported that none of six park museums where readings were taken showed acceptable standards of environmental control even though some had air conditioning or humidifiers/dehumidifiers. The branch issued her report with a definition of desired relative humidity as between 50% and 65% and a warning that levels below 45% or above 70% courted serious specimen deterioration.⁵⁹

Preliminary conclusions drawn from this sample of park museums called for a wider study. In the spring of 1965 all parks were requested to examine the conditions under which they maintained valuable museum objects. The standard of 50-65% relative humidity was accompanied by advice to avoid rapid changes within those limits. Light meters were added to the traveling kits and a standard of no more than 15 footcandles with the ultraviolet component removed by filters was set for light on exhibited specimens. Study collections were to be stored in darkness. Parks failing to meet the standards were to report the shortcomings to the new Branch of Museum Operations by the end of the year. Resulting information helped the branch formulate the climate control section of the 1967 *Museum Handbook*. It altered the relative humidity recommendation to 45-65% and added a temperature goal of 60-75° F.⁶⁰

The work of conservation scientists continually expanded and refined knowledge about the environmental needs of specimens, making further changes in park museum practice necessary. During the period under review these changes principally involved guidelines, equipment, and training. The *Manual for Museums* of 1976 lowered the recommended range of relative humidity for collections to 40-60% and gave more specific advice on the detection and control of air pollutants. More park museums and greater sensitivity to environmental hazards called for monitoring far beyond the capacity of the original kits. Under Arthur Allen the Branch/Division of Museum Services responded by trying out a much wider range of available instruments and, looking toward a time when every park museum would have its own set, managed to multiply the amount of monitoring equipment on hand for tracking conditions in park collections. Through emphasis in curatorial methods courses and other instructional opportunities, more and more parks came to have employees concerned about and capable of measuring environmental conditions in museum storerooms and exhibit cases.

Protecting vulnerable specimens from insect infestation was another aspect of collection care that responded to advances in conservation research. Periodic fumigation having long been recognized as the surest form of protection, park museums with well-informed staff followed this practice from the start, normally using carbon disulfide during the 1920s and 1930s. After experts rated this highly flammable substance extremely

dangerous to those much exposed to its fumes, the 1941 *Field Manual for Museums* recommended instead fumigating with a mixture of three parts ethylene dichloride and one part carbon tetrachloride. This fumigant, used in treating stored grain, was marketed in 55-gallon drums. Because a park museum might reasonably use a gallon a year, the Museum Branch stocked a drum so it could dispense gallon lots to requesting parks. (The scheme encountered trouble with shipping regulations for hazardous materials.)

Through the 1950s and 1960s the branch continued to use and advocate this fumigant based on consultations with Agriculture Department experts in the control of insect pests, but it made a change in the mode of application. The 1967 *Museum Handbook* emphasized the importance of fumigating organic specimens before placing them in a park collection and offered detailed instructions for doing so. Initial rather than periodic fumigation became the primary use for ethylene dichloride-carbon tetrachloride in park museums. Recognizing that parks could not afford sophisticated fumigation chambers or the space to house them, the handbook proposed using a standard specimen storage cabinet as the chamber and described how to do so. This limited the size of specimens that could be treated.⁶¹ The instructions pointed out the deadly nature of carbon tetrachloride, but the fumigant mixture continued in park museum use until the 1970s.

Because the Environmental Protection Agency had not yet registered this pesticide for museum application, the 1976 *Manual for Museums* proposed that park museums use paradichlorobenzene as the fumigant. The 1941 *Field Manual* had regarded this volatile crystalline chemical more as a deterrent than an insecticide but recommended it for situations where carbon disulfide fumigation had been common. Although warning against inhaling its fumes, it advocated keeping a liberal supply in every cabinet drawer containing vulnerable specimens. In 1967 the *Museum Handbook* recommended refilling small trays of paradichlorobenzene crystals in each drawer or exhibit case housing organic material every three months. This amounted to continuous rather than periodic fumigation following initial disinfestation. The change in the *Manual for Museums* consisted of adopting paradichlorobenzene for initial fumigation, after which much smaller measured amounts would suffice for continuous fumigation.

The Division of Museum Services remained concerned that active collection care exposed workers to an unhealthy level of paradichlorobenzene, and questions persisted about the legality of using it in museums under EPA regulations.⁶² A critical policy change followed in the early 1980s when the Service adopted integrated pest management. Monitoring for evidence of infestation then became the first line of defense. Only as a last resort and with official permission could a properly registered pesticide be applied.

Because national parks developed museums on a firm belief in their utility, collection care presupposed collection use. Exhibit specimens hardly had to prove the point. They remained important tools in park interpretation even though they lost their prime narrative role during the last 15 or so years under review (Chapter Five).

Perceiving that park interpreters generally let the exhibits perform their functions passively, the central staff of museum professionals long sought to stimulate their use. The 1941 *Field Manual* in its chapter on the museum in use and both the 1967 *Museum Handbook* and the 1976 *Manual for Museums* in their chapters on using collections described ways to increase the effective use of exhibit specimens through planned interpretive activities. The Museum Methods training course also emphasized such programs through field trips to illustrative museums, discussions, and reading assignments. Resulting applications in park museums were only occasionally documented, however.⁶³

Study collections have also had important uses, both actual and potential. Because use of the study series is typically inconspicuous and because they often hear more about the costs than the profits of maintaining study specimens, park managers have sometimes questioned the value of these accumulating objects for which they stand accountable. Park study collections in fact have served three principal uses.

First, these collections have provided park interpreters with ready reference libraries composed of actual objects accompanied by data. Their familiarity with the specimens in their custody has undoubtedly increased the accuracy and incisiveness of the interpretation visitors have received. Seasonal interpreters have necessarily depended in many instances on the collections for first-hand knowledge. Resource specialists need to verify the identification of involved organisms before safely recommending management actions. Park visitors with special interests have made significant reference use of park collections.

Research use draws more notice. Study collections in park museums provide raw material for fruitful investigations. The published flora of numerous parks rest on the herbarium collections in park museums. Most archeological collections in park museums represent research either published or accessible in report form. Park collections hold specimens that have formed the basis for uncounted articles, books, and theses. Even so, the potential of park collections for serious study has not been fully realized.

Several factors have hindered such use. Research constituted a recognized part of the workload park interpreters once carried, but their aptitude for it varied, and as park visitation increased they found less time for it. Research specialists added to park staffs, detailed from central offices, or engaged under contract became responsible for most of the

investigations carried on in the parks. They normally worked on specific problems currently important for the preservation or management of a park and tended to make little use of collections. By the mid-1960s emphasis placed on interpretive skills led park management to frown on interpreters doing research. Efforts of park staffs to circulate information about collections available for study or otherwise promote their research use scored some success, but not enough to realize the potential of Service collections in this regard.

Beyond the period under review, two factors pointed toward significant growth in the research use of park collections. Computerized records would make them readily available to scholars in many fields. The inclusion of parks in the international biosphere reserve and world heritage sites networks obligated the Service to continually monitor changes by comparison with baseline collections. These collections illustrate the third kind of use. Constituting irreplaceable documents verifying research results, they must remain to the fullest possible extent available for restudy. Their retention constitutes a basic museum function and a fundamentally important use of park collections even if seldom exercised.

Curatorial Staffing

The Park Service museum program required curators to perform two distinct but inseparably connected functions. One group of curators focused on the museum policies, standards, and specialized skills necessary to meet Service goals and obligations. The other operated and maintained park museums. Neither exercised line authority over the other, and progress demanded mutual cooperation. The dichotomy arose because small park museums could not justify operating staffs with all the skills necessary to achieve and maintain the professional standards proper to a national park. Local staffs would have to be supplemented with the wide range of expert assistance called for on occasion.

Hermon Bumpus put his finger on the problem in 1929. Observing the experimental museum developments he had initiated at Yellowstone, he concluded that the park naturalists might operate the museums successfully if they received guidance and support from experts such as he had assembled to help plan, prepare, and install exhibits. Specialists also assisted in setting up proper care for the collections. The collaboration Bumpus tried out at Yellowstone led to the curatorial staffing pattern that came to typify park museums.

Preceding chapters have traced the evolving central staff of curators and specialists from the 1935 formation of the Museum Division in Washington to the reestablishment of curatorial services as a Washington Office function in 1980. In the 1935-64 period the staff curators concen-

trated on the exhibit aspects of park museums, but their production of the *Field Manual* and *Museum Handbook* demonstrated that they did not entirely neglect the collections. During the next 16 years a growing segment of the central staff focused on collection management. Even so the gap seemed to widen between Service museum standards and what park museums could actually achieve in consequence of both collections and visitation growing much faster than local staffing.

Staff curators stationed in the regional offices helped bridge the gap by bringing professional leadership closer to the parks. As noted above, the first regional curators held temporary appointments funded from a special museum records program. Their work showed the valuable role curatorial expertise could play at the regional level, and eventually all regions would establish and fill such positions. Among the original group Elizabeth Albro served the Southeast Region until 1966, then became regional curator for the National Capital Region. Newell Joyner manned the Midwest Region post until his death in 1965. In the Southwest Region Franklin Smith held the job until becoming a park superintendent in 1965. The Western Region temporarily gave up the position in 1959 when Leland Abel transferred to the Western Museum Laboratory. Horace Willcox met the difficult problems of the Northeast Region until 1966 when he transferred to a curatorship for New York State.

Their successors also made their mark. In 1966 Jean Rodeck Swearingen followed Frank Smith as Southwest regional curator. She had been nurtured in a museum environment and had worked for the Florida State Museum as well as the Western Museum Laboratory. When she transferred to the Denver Service Center in 1973, the region promptly secured Gordon V. Gay, the curator at Carl Sandburg Home National Historic Site. After two years of service in Santa Fe he accepted a transfer to become curator for the National Capital Region and was replaced by David M. Brugge, whose strong anthropological background had served him well as curator at Hubbell Trading Post National Historic Site. Brugge continued to provide expert guidance to the park museums of the area until his retirement in 1989.

The Western Region took longer to respond to corresponding needs. The position vacated by Leland Abel was not filled until Edward D. Jahns transferred from the Western Museum Laboratory in 1967. Jahns revitalized it until 1974 when he moved to the newly established curatorship of the Rocky Mountain Region. The Western Region again lapsed the position, not bringing in David Forgang, curator for the Southern Arizona Group, until 1978. Forgang left in 1983 to become Yosemite's museum curator and was followed by Diane Nicholson, formerly curator at Golden Gate National Recreation Area.

In the Northeast Region a briefer break in curatorial succession occurred. William J. Jedlick, assistant director of the Chicago Historical Society, brought historical museum experience the region particularly needed when he filled its vacancy in 1971. After reorganization created a North Atlantic Region in 1974, Jedlick remained as curator of the realigned Mid-Atlantic Region through and beyond the period under review. In 1975 the new North Atlantic Region selected Edward L. Kallop, Jr., from the museum curatorship at the Statue of Liberty National Monument, which included the American Museum of Immigration. He provided the region professional leadership in its critical museum problems until his retirement after the limits of this study.

The Midwest and Rocky Mountain regions had meanwhile selected staff curators who would serve them well into the 1980s. The Midwest Region chose John E. Hunter, curator of the Infantry Museum at Fort Benning. Entering on duty in 1973, he became a recognized expert in the protection and security aspects of collection care. As noted above, Edward Jahns transferred to the Rocky Mountain Region the next year.

Other regions experienced longer lapses. The Pacific Northwest Region, split from the Western Region in 1970, waited until 1980 to appoint Kent M. Bush, an experienced curator who had succeeded David Brugge at Hubbell Trading Post National Historic Site. The Southeast Region apparently did not fill the position Elizabeth Albro left in 1966 until appointing William K. Kay, a historian versed in the Civil War and military material culture, in 1979. When health forced Kay's retirement, H. Dale Durham from the Division of Museum Services staff followed him as regional curator in 1981. Gordon Gay's appointment ended a six-year lapse in the National Capital Region. He achieved a consolidation of the scattered collections before accepting responsibility for the National Catalog in 1978. Michael J. Vice filled the National Capital position from 1979 to 1982, bringing experience from the Army's museum system. When he rejoined the military museums, the talented and energetic deputy regional curator, Pamela West, succeeded him. The Alaska Region, split from the Pacific Northwest Region in 1980, hired Jean Swearingen as regional curator in 1984.

Because federal civil service requirements demand more detailed analysis and definition of jobs than common in most museums, the title of curator has a more explicit meaning in the federal context. Federal classification standards for a museum curator series existed at least from 1949, but they fitted positions in the Smithsonian's big museums rather than those for park museums. Revised standards in 1962 incorporated Park Service concerns. They restricted the title to positions whose duties included all four "conceptual cornerstones of modern public museums—research, collection, exhibits, and education"⁶⁴ Museum employees

who specialized in fewer of these functions either fitted other professional classifications or belonged in the museum specialist and technician series. The 1962 standards recognized the two categories of museum curator and staff curator, the latter then unique to the Park Service. Most of those on the central staff and the regional curators were classified as staff curators (museum management). Curatorial members of the exhibit planning teams were staff curators (museum design). Curators of park museums fitted the museum curator category, which allowed for subject specializations.

When Hermon Bumpus decided that park interpreters should be able to manage park museum collections with occasional expert oversight and help on call, no alternative seemed financially practicable or professionally acceptable. Nearly all the interpreters then had degrees in natural sciences or anthropology and field experience in the techniques of collecting, preparing, and studying specimens. They found less time to care for collections as demands for visitor services multiplied, however, and changing emphases in the academic fields that supplied their ranks meant that their successors often came with less knowledge and concern about collections. Shifting more of the museum duties to seasonal interpreters did not overcome mounting neglect. Two solutions that developed in time involved hiring museum staff specifically assigned to work with collections.

The first consisted of engaging professional museum curators to manage park collections. Few of the natural parks had collections of a size that seemed to justify this approach. A 1965 survey led to recommending the retention of the curator position then at Grand Canyon National Park and the filling of ones at Yellowstone and Yosemite.⁶⁵ Yosemite did subsequently employ a capable full-time curator, Jack Gyer, but as much for its historical as its scientific collections.

When Carl Russell set out in 1935 to apply the Bumpus staffing formula to eastern problems, he discovered a complication in the historical park category. Unlike naturalists and archeologists, the historians assigned to interpret parks had virtually no academic training or field experience in assembling, managing, or using collections. In struggling to build his central museum staff, Russell also found few curators qualified for professional work in historical parks. The difficulty was deep-seated. Whereas natural scientists and archeologists possessed established techniques for collecting, preparing, labeling, recording, and storing specimens, historians lacked a corresponding body of recognized procedures. Because historians as a rule failed to see a scholarly use in collecting cultural artifacts, a tradition of systematic research to analyze and classify them hardly existed.

Morristown used emergency relief funds to employ Alfred F. Hopkins, an antiquarian with some museum experience in and outside the parks, as a temporary curator in 1938. The park moved promptly to set up the

curatorship as a permanent civil service position, the first such in any national park. Quite likely no register of eligible historical curators existed. Paul Hudson, a member of the Museum Division's still-temporary staff with some historical park museum experience who may have obtained civil service certification on a park naturalist register, secured the appointment in 1940 (Chapter Three). After World War II Ned Burns sent Albert McClure to Vanderbilt Mansion National Historic Site and James Mulcahy to Independence National Historical Park to care for their collections (Chapter Four). Neither had professional training as a curator but provided skilled hands and familiarity with Park Service museum policies. By 1964 there were full-time curatorial positions in twelve parks, ten of them historical.⁶⁶ In four of the latter the curators, devoted to the objects in their care but with limited background in museum requirements, had come with the collections. Some of the others came by transfer from other parks and disciplines. Few had as much curatorial training or experience as desirable.

One incentive toward higher qualification standards began in the mid-1950s when the Branch of Museums raised its sights regarding the role and quality of furnished historic structure museums (Chapter Six). Its search for curators possessing the requisite combination of historical and museological capacities led it to enlist such talents as those of Vera Craig, Worth Bailey, Sally Johnson (Ketcham), Nan Carson (Rickey), and Agnes Downey (Mullins). David Wallace as curator at Independence, facing a similar need around 1960, built his staff largely from graduates of the Winterthur program. Other parks began to follow his example in seeking curators from professional training sources. By the early 1980s more than forty professional curators worked in parks, a majority on historical collections. They represented the first developing solution to the problem of providing proper collection management in parks whose interpreters lacked the time or expertise. It was a viable solution for collections requiring the full-time attention of trained curators. At the same time it raised both professional and administrative questions.

Curators trained in the several graduate programs that developed in the 1950s through the 1970s leaned to the more scholarly aspects of the profession. Park museums, whose collections and interpretive missions were centered on their sites, offered narrower opportunities for scholarship than did museums of wider scope. Broader studies comparing objects in a park collection to others of the kind might enhance the collection as an interpretive tool, but the exercise of critical connoisseurship to determine artifacts of "museum quality" was foreign to park purposes. Other pressing collection management duties had higher priority. Understandably the curators at times felt frustrated.

John Milley voiced such concern when he succeeded David Wallace at Independence in 1969. Wallace responded with a clear-sighted analysis of the situation:

As you probably are aware I am inclined to see the Park Service curator's functions as somewhat more "technical" than "professional" in contrast to those of a scholar-curator at the Smithsonian or the American Museum of Natural History. As you have pointed out, the collections are not the park's reason for being; the park story is the collection's reason for being. . . . In this sense the Service does not and never will, I think, provide quite the same satisfactions to a curator (opportunities for on-the-job scholarship, professional prestige) that a major museum offers. The park curator's main job is to physically care for collections and he must be judged by the way he carries out this function. If he has the talent and energy to be a publishing scholar as well, so much the better, but if that is his main interest, he must give up his own time to it or get a job in a museum like the Smithsonian where the advancement of knowledge is the primary function.⁶⁷

Nine years later curators in the North Atlantic Region, under Edward Kallop's direction, addressed the question from an organizational standpoint and produced a seminal report. The report proclaimed "a widely shared dissatisfaction among our curators regarding their place in an organization which, on the whole, has a fundamental lack of understanding of what constitutes curatorial activity" It noted that park curators faced a daunting backlog and accumulating burden of museum records, which large museums outside the Service assigned to specialists called registrars who were becoming collateral to rather than part of the curatorial profession. They were charged with routine collection care, which could be performed more economically by supervised sub-professionals. They had little time or encouragement for research to advance collection use, which demanded their professional skills and justified the collection management effort. "Out of curatorial research come perceptions that benefit interpretation," the report stated. "Exhibit ideas develop. Publications are inspired. Educational programs are generated. All add to the dissemination of knowledge, ideas, and interpretive insights about a collection and the site of which it is a part that are very much in the public interest."⁶⁸ As a park museum curator who achieved such professional goals, John Dryfhout at Saint-Gaudens National Historic Site set an example with the scholarly catalog for the National Portrait Gallery's exhibition of Saint-Gaudens portrait reliefs, handsomely published by the Smithsonian Institution. Dryfhout also earned promotion to the superintendency of the park.

The curators asked for a larger role in interpretive and exhibit planning based on collection research. They also asked for help with their sub-professional responsibilities. This request encompassed the second solution to the problem of providing adequate collection management at the park level. It involved using another series of civil service museum positions.

Classification standards for a museum specialist and technician series were issued in 1961 "to provide the technical back-up, support, and assistance necessary to managerial, scientific, and curatorial activities in museums."⁶⁹ Museum aids classified in grades 2, 3, and 4 would perform specialized tasks as helpers in the routine care of collections. They might assist with accessioning and cataloging, monitor environmental conditions and make necessary equipment adjustments, and carefully handle specimens in periodic cleaning or preservative treatment. Museum technicians in grades 5, 7, and 9 might do much of the work of collection registration and maintenance for their supervising interpreters or professional curators and serve as technical assistants for scholars researching the collection. Museum specialists in grades 9-12 included those in the new profession of conservator (treated in the following chapter), managers of large collections, and apprentice curators.

Parks began to establish positions in this series at least by 1969, when Harpers Ferry National Historical Park obtained a museum technician. Hilda E. Staubs, who had helped with the collection while a clerical assistant to the park interpreter, mastered the requirements of accessioning and cataloging, safe and secure specimen storage, preventive maintenance, and the other aspects of good collection management. By the early 1980s parks had more than sixty positions in the series. Among the incumbents, museum specialist Kathleen L. Manscill managed the collections for Great Smoky Mountains, museum specialist Allen Bohnert became collection manager and later curator at Mesa Verde, and museum technician Barbara Berosa served as registrar for Yosemite while also in demand as a collection management planner for other parks.⁷⁰

The Service correctly estimated that these positions would double before the end of the decade and focused curatorial methods training on the incumbents. The growth in this skilled category, together with the increase in professional park museum curators, promised to solve the problem Bumpus could not foresee when he expected that park interpreters could maintain and operate their museums without specialized in-park help. Growth beyond conception at his time had made such help essential if the museums were to achieve Service curatorial standards.

NOTES

1. Lane's letter of May 13, 1918 (drafted by Horace M. Albright), called for "museums containing specimens of wild flowers, shrubs, and trees, and mounted animals, birds, and fish native to the parks . . ." (U.S. Department of the Interior, *Report of the Director of the National Park Service to the Secretary of the Interior for the Fiscal Year Ending June 30, 1918* [Washington: Government Printing Office, 1918], p. 274; hereinafter cited as *Report of the Director for [year]*). Mather described park museums as "places to stimulate the interest of visitors . . . by the presentation of exhibits telling in a clear, consecutive way, the story of the

park from its geological beginnings through all branches of history up to and including the coming of man and his works. . . . The national parks themselves are the real museums of nature, and the park museums in each will simply serve as an index to the wonders that may be studied and enjoyed on the ground . . ." (*Report of the Director for 1925*, p. 12).

2. Merriam et al., *Reports with Recommendations from the Committee on Study of Educational Problems in National Parks, January 9, 1929, and November 27, 1929* (Washington: Department of the Interior, n.d.); "General Plan of Administration for the Educational Division," Philosophy of Interpretation 1917-47 folder, History of Interpretation to 1935 box, NPS History Collection.
3. Memorandum, Acting Director to All Field Offices, Feb. 27, 1939, Museum Policies binder, NPS History Collection; memorandum, Director to Washington and All Field Offices, Mar. 13, 1940, *ibid.*
4. Ned J. Burns, *Field Manual for Museums* (Washington: National Park Service, 1941), p. 102; *Museum Handbook* (Release No. 1, July 1967), Part I, ch. 1, p. 2.
5. "Proceedings of the Second Park Naturalists Conference Held at Grand Canyon National Park, November 13-17, 1940," p. 350, NPS History Collection; Burns, *Field Manual*, p. 102.
6. *NPS Administrative Manual*, Vol. IV, Interpretation, Part 5, ch. 5, p. 1; memorandum, Chief, Branch of Museums, to Chief, Master Plan Coordination, Mar. 23, 1962, Branch of Museums Dailies 1959-62 storage box, NPS History Collection.
7. Field Order 71-53, Director to All Field Offices, July 13, 1953, Exhibit History 1943-59 box, NPS History Collection.
8. Museum Prospectus, Mineral Museum, Blue Ridge Parkway, pp. 40-41, Blue Ridge Parkway box, *ibid.*
9. "Activity Standards, Environmental Interpretation and Supporting Activities," July 26, 1971, pp. 2-4, Museum History 1970-79 box, *ibid.*
10. Memorandum, Manager, HFC, to All Regional Directors, Aug. 5, 1974, Conference-Regional Curators 1974 folder, Curatorial Services Division files, Harpers Ferry; memorandum, Manager, HFC, to Regional Chiefs of Interpretation, Apr. 10, 1975, Scope of Collections folder, *ibid.* A June 18, 1975, memorandum from the Midwest regional director in the latter folder contains a contrary evaluation of the need. It is likely that the intellectual effort required to prepare effective scope statements in the absence of active managerial interest rather than confusion over where to place them is what delayed work on them so long.
11. Ch. V, p. 11.
12. Regional Curators Conference 1978 folder, Curatorial Services Division files, Harpers Ferry.
13. Memorandum, Director to Regional Directors and Managers, DSC and HFC, Mar. 12, 1979, Cultural Resources Conference 1979 folder, *ibid.*; memorandum, Director to Directorate and Field Directorate, Mar. 1, 1985, Museum History 1980- box, NPS History Collection. The directive set a deadline of December 31, 1985, for the completion of scope of collection statements and required their annual review with revision as necessary.

14. Loan and Gift Policy 1936-37 folder, Exhibit History before 1938 box, NPS History Collection.
15. 1936 Museums folder, Annual Reports, Branch of Interpretation box, *ibid*.
16. Loan and Gift Policy 1936-37 folder, Exhibit History before 1938 box, *ibid*.
17. Museum Policy binder, NPS History Collection.
18. Memorandum, Director to Regional Directors, Dec. 2, 1942, and subsequent memoranda, Museum Policy binder, NPS History Collection.
19. *Museum Handbook*, Part I, ch. 2, p. 4 (1967).
20. Memorandum, Acting Director to Regional Directors, Nov. 23, 1944, Museum Policy binder, NPS History Collection; memorandum, Director to Washington Office and All Field Offices, June 17, 1953, Field Orders 1950-69 storage box, *ibid*.
21. Report, Conference of Regional Museum Curators, Sept. 13-18, 1964, Regional Curators Conference 1964 folder, Curatorial Services Division files, Harpers Ferry.
22. Illustrations in *Museum Handbook*, Part I, Appendix C, pp. 1-2 (1967).
23. "Proceedings of the Second Park Naturalists Conference," pp. 148-49; memorandum, Director to All Field Offices, Jan. 31, 1941, Museum Memos 1941-42 folder, Exhibit History 1939-42 box, NPS History Collection.
24. The painting of Benjamin Franklin, donated by ex-president Harry S Truman, was shipped via Railway Express insured for \$20,000. The Service scurried to obtain a donation from Eastern National Park and Monument Association to reimburse the shipper. Accession File folder, Acc. #77, Independence National Historical Park.
25. *U.S. Code Congressional and Administrative News* (St. Paul: West Publishing Co., 1955), pp. 2307-08; Public Law 84-127, U.S. *Statutes at Large* 69: 242.
26. An example was the multi-specimen swap triggered by the availability of a rare set of gauges used in manufacturing the Model 1841 Harpers Ferry rifle, ideal for exhibiting in the Master Armorer's House at Harpers Ferry National Historical Park.
27. Memorandum, Chief, Branch of Museums, to Regional Director, Northeast Region, Jan. 7, 1964, with copies of agreement and inventory, Branch of Museums/Museum Operations Dailies August 1962-December 1966 storage box, NPS History Collection. The consultant had a stake in the sound development of both projects.
28. Report, Conference of Regional Museum Curators, Feb. 9-20, 1959, pp. 8-11, Regional Curators Conference 1964 folder, Curatorial Services Division files, Harpers Ferry. Regional Curator Newell Joyner contributed particularly to the clearinghouse discussion.

29. Field Order 2-61, Acting Director to All Field Offices, Apr. 3, 1961, Field Orders 1950-69 storage box, NPS History Collection; *Museum News* 39, no. 9 (June 1961): 5; memorandum, Acting Regional Director, Region Two, to Director, June 5, 1962, Midwest Region folder, Branch of Museums General Files storage box, NPS History Collection.
30. Report, Conference of Regional Museum Curators, 1959, pp. 5-8.
31. Memorandum, Chief, Museum Services, to Manager, HFC, May 15, 1978, Clearinghouse folder, Curatorial Services Division files, Harpers Ferry; memorandum, Deputy Manager, HFC, to Chiefs, Museum Services and Reference Services, July 9, 1980, *ibid.*; Manager, Chief, Museum Services, to Manager, HFC, July 23, 1981, *ibid.*
32. Reports of Field Naturalist folder, Russell Museum Planning 1929-35 box, Richard W. Russell Personal Files.
33. "Proceedings of the First Park Naturalists' Training Conference Held at Educational Headquarters, Berkeley, California, November 1 to 30, 1929," p. 88, Interpretive Conferences 1929-58 box, NPS History Collection.
34. Reports of Field Naturalist 1929-31 and Fall 1932 folders, Russell Museum Planning 1928-33 box, Richard W. Russell Personal Files.
35. Copy in Museum Policies binder, NPS History Collection.
36. Region One Circular, Feb. 14, 1950, Supply and Equipment Program files, Curatorial Services Division files, Harpers Ferry.
37. Museum Division monthly report, November 1940, and Museum Branch monthly report, December 1955, Monthly Reports, Museum Division box, NPS History Collection; memorandum, Chief, Division of Interpretation, to Chief, Branch of Personnel, Jan. 19, 1956, Reclassification of Chief, Museum Branch folder, Exhibit History 1943-59 box, *ibid.*
38. Fox's availability was fortuitous. She had moved to Washington with her husband, a State Department employee. Charles Nagel, former director of the Brooklyn Museum and Park Service collaborator on the Independence Hall furnishings committee, had also come to Washington as founding director of the National Portrait Gallery. When she sought a job, he commended her to the Museum Branch. She resigned to accompany her husband to his new post in London.
39. Having worked with the combined accession-catalog numbers frequently used in art museums, Fox concurred somewhat reluctantly in the separate numbers. *Museum Registration Methods*, then awaiting publication by the American Association of Museums, would recommend use of the three-part combination accession-catalog number, so the Service's decision to keep its simpler numbering required justification.
40. The *Museum Records Handbook* later became Part II of the *Museum Handbook*.
41. When Yosemite hired a full-time curator in 1959 to make a late start on its museum records, for example, Region Four let Abel transfer to the Western Museum Laboratory and did not refill the position.

42. In Region One the million-specimen collection at Ocmulgee, cataloged to older standards, seemed safe to postpone until other collections at greater risk were properly recorded. At Fort Laramie in Region Two the staff faced years of work to catch up on record backlogs without addressing imminent large accessions from additional excavations. The contract archeologist in charge of the Wetherill Mesa project at Mesa Verde declined to record the massive new collections under the new system despite the Region Three curator's request, leaving a major task for later park curators. In Region Four Yosemite's new park curator, Coyt Hackett, enlisted park wives for a cataloging team, but progress declined when hiring them proved contrary to regulations. The Edison sites presented a formidable challenge in Region Five.

43. Memorandum, Acting Chief, Division of Interpretation, to Regional Directors and Superintendent, NCP, Dec. 9, 1959, Branch of Museums Dailies 1959-62 storage box, NPS History Collection; memorandum, Chief, Division of Interpretation, to Regional Directors and Superintendent, NCP, May 24, 1961, *ibid.*

44. Memorandum, Chief, Branch of Museums, to Director, July 22, 1963, *ibid.*

45. Report, Conference of Regional Museum Curators, 1964, Part 1 and Attachment 2.

46. *Ibid.*, Attachment 3. Later developments in archeological practice away from culling would require further changes in recording.

47. Memorandum, Chief, Branch of Museum Operations, to Chief Curator et al., May 19, 1965, Branch of Museums/Museum Operations Dailies August 1962-December 1966 storage box, NPS History Collection.

48. Memorandum, Assistant Chief, Branch of Museum Operations, to Chief, Branch of Museum Operations, Feb. 12, 1969, Harpers Ferry Museum Support Facility June 1968-June 1969 binder, *ibid.*

49. Memorandum, Chief, Branch of Museum Operations, to Chief, Division of Property Management and General Services, Apr. 19, 1973, NPS Archives Ace. No. 31 storage box, *ibid.*

50. Report of Field Naturalist-Museum Advisor for October 1929, Russell Museum Planning 1928-33 box, Richard W. Russell Personal Files.

51. Check List for Museum Planning folder, Exhibit History 1943-49 box, NPS History Collection.

52. Ralph H. Lewis, "Reexamination of the Museum Phases of Mission 66," June 22, 1960, draft in Museum History 1960-69 box, *ibid.*; memorandum, Chief, Branch of Museums, to Chief, Division of Design and Construction, Nov. 7, 1960, Branch of Museums Dailies 1959-62 storage box, *ibid.*; memorandum, Chief, Division of Interpretation, to Regional Directors et al., Dec. 30, 1960, *ibid.*; Report, Conference of Regional Museum Curators, 1964, p. 4.

53. "Proceedings of the First Park Naturalists' Training Conference," pp. 73-75.

54. "Miscellaneous Products Available to National Parks and Monuments from Western Museum Laboratories," WML WPA Prop. Products Cat. box, NPS History Collection.

55. *Field Manual for Museums*, pp. 95-100.

56. Appendix G, Museum Specimen Storage Equipment, Amendment No. 7 to Vol. 25, Information and Interpretation in the Field.

57. All-steel construction was chosen out of consideration for long-term availability, even though heat would penetrate it more rapidly in case of fire. The branch decided to accept the risk and warn parks to compensate for it in fire protection planning. The polyurethane gaskets, supposedly more durable and environmentally safe than rubber, deteriorated after a few years. By 1981 Donald Cumberland secured manufacture of a synthetic rubber gasket as a replacement.

58. Between closure of the Western Museum Laboratory in 1968 and activation of the Harpers Ferry Center laboratory in 1970, employees transferred from San Francisco to Harpers Ferry built and crated a modest stock of gun and sword racks for park museums.

59. Letter, Chief, Branch of Museums, to Nathan Stolow, Aug. 15, 1962, Branch of Museums/Museum Operations Dailies August 1962-December 1966 storage box, NPS History Collection; memorandum, Chief, Branch of Museums, to All Regional Directors, Mar. 22, 1963, *ibid.*; Report, Conference of Regional Museum Curators, 1964, Attachment 5.

60. Memorandum, Assistant Director, Operations, to All Regional Directors, Apr. 9, 1965, Branch of Museums/Museum Operations Dailies August 1962-December 1966 storage box, NPS History Collection; *Museum Handbook* Part I, ch. 4, pp. 11-19 (1967). Later in 1967 Ralph Lewis participated in a conference of the International Institute for Conservation of Historic and Artistic Works focusing on museum climatology, bringing the branch into touch with current developments.

61. When the Museum Branch needed to fumigate larger objects such as furniture it secured the cooperation of the National Archives, which had a large vacuum fumigation chamber and would add Park Service artifacts to a partial load of documents being treated. The vacuum enabled the gas to penetrate deeply into internal spaces where pests might lurk. The branch encouraged park museums to seek similar arrangements with nearby hospitals or other operations performing vacuum fumigation. In the mid-1970s the Division of Museum Services designed and built a small chamber, possibly adaptable to park museum use, permitting fumigation under vacuum or elevated pressure and temperature.

62. R. L. Ruke, "Hazard Evaluation and Technical Assistance Report, Harpers Ferry Center Museum Laboratory," 1977, Curatorial Services Division files, Harpers Ferry.

63. The living history programs enthusiastically adopted by many parks during the 1960s and 1970s proceeded largely apart from their museum exhibits, tended to lack curatorial input, and sometimes used original objects in damaging ways. Protests led by the Division of Museum Services resulted in requirements that reproductions be used for virtually all utensils, tools, furnishings, and costumes in such programs.

64. U.S. Civil Service Commission, *Position Classification Standards, Museum Curator Series, GS-1015*, February 1962. Treva Burd, a Park Service personnel officer, contributed particularly to the inclusion of park museum considerations.

65. Memorandum, Chief, Branch of Museum Operations, to Chief, Division of Interpretation and Visitor Services, Dec. 30, 1965, Branch of Museums/Museum Operations August 1962-December 1966 storage box, NPS History Collection.
66. Report, Conference of Regional Museum Curators, 1964, Attachment 18.
67. Letter, Wallace to Milley, June 27, 1969, Harpers Ferry Museum Support Facility Daily File 1968-69 binder, Museum Dailies storage box, NPS History Collection.
68. "Evaluation of the North Atlantic Region's Curatorial Activity and Personnel Needs," June 1978, pp. 1, 11, North Atlantic Region folder, Curatorial Services Division files, Harpers Ferry.
69. U.S. Civil Service Commission, *Position Classification Standards, Museum Specialist and Technician Series, GS-1016*, December 1961.
70. Bohnert, professionally trained in the Texas Tech University museum program and at the Carnegie Museum of Natural History, later succeeded Edward Jahns as Rocky Mountain regional curator.